

ABSTRACT

An alternating electric field is applied at an ice interface to generate a resistive AC current having a frequency greater than 1000 Hz in interfacial ice. Typically, a first electrode and a second electrode proximate to the interface are separated by an interelectrode distance of  
5 about 50  $\mu\text{m}$  to 500  $\mu\text{m}$ . An AC power source provides a voltage of about 10 to 500 volts across the electrodes in order to create the alternating electric field. Interfacial ice converts capacitive AC current into resistive AC current, which generates Joule heat in the interfacial ice.